

HALLUX VALGUS SURGERY IN THE GERIATRIC PATIENT

Jeffrey S. Boberg, DPM

The United States is an aging society. In 1989, those 65 years old and above, accounted for 12.3% of the population. It has been projected that by the year 2030 that percentage will have risen to 20%. A significant number of these patients will seek podiatric care. The podiatric needs of the elderly typically exceed those of younger populations. Although activity levels and subsequent stress placed on the foot are reduced, deformities have usually progressed so that shoes tend to be uncomfortable. Many of these patients will require surgical management.

There are multiple characteristics of the elderly, both physical and psychological which need to be taken into account for the surgical patient. Some of the most basic are 1) altered physiology, 2) co-existing disease, 3) altered drug actions, 4) atypical response to illness, 5) functional disabilities and 6) the need for social support.

There are physiologic changes in nearly all systems in the elderly with multiple podiatric surgical implications from the surgery through the postoperative period. Intraoperatively one of our biggest concerns is osteoporosis. Above the age of 40 bone mass decreases by 5-10% per decade, so that by the age of 70, one could see a nearly 30% loss in bone mass, most of this being trabecular bone. This has direct implications on the type of fixation used on osteotomies. Healing times also tend to be altered. Osteoporotic bone heals like normal bone but the calcification of the callus takes longer. This allows for increased deformation of bone in weight bearing patients.

Medication dosages need to be monitored, especially analgesics. Patients must be kept well hydrated. Confusion and disorientation can easily be produced by dehydration, as post op patients are often too sedated or in too much pain to obtain liquids when thirsty. This is more of a problem in the estimated 10% of elderly who live by themselves.

Decreased cardiac output, atherosclerosis and muscle atrophy place great strains on the postoperative patient. Most patients are unable to become non-weight bearing and some even ambulate unsteadily with a cane. Stairs can now become major obstacles. Therefore, hallux valgus surgery in the elderly must be approached differently than in the younger patient. While the overall

goals of bunion surgery are to reduce pain, deformity and improve appearance, in the elderly reducing pain takes preference to correction of deformity. I inform all patients that my goal is make them comfortable in shoes with as little disability as possible, even though this still may leave a deformity present. Nearly all patients understand and accept this approach.

SURGICAL ALGORITHM

There are four types of procedures I will perform on the elderly: Silver bunionectomy, Keller bunionectomy, Austin osteotomy, and first metatarsalphalangeal joint arthrodesis.

Austin Bunionectomy

On bunions with an intermetatarsal angle of no more than 12-14° I will perform a capitol osteotomy in patients without marked osteoporosis. The Austin appears safe with mild calcium loss, but I will alter my fixation in patients with bone loss. I have found that a 4.0 mm screw directed from proximal-dorsal to distal-plantar will weaken the capitol fragment and may result in fracture of the metatarsal head. I now use either a small screw (2.0 or 2.4mm) or more commonly a 0.062" K-wire. The patients ambulate immediately in a surgical shoe and can return to any soft shoe as soon as possible with a carbon fiber composite insole. I do not like osteotomies that travel proximal into the diaphysis; base osteotomies or any proximal procedure(s) should not be performed. This group of procedures require non-weight bearing and take a very long time to fully remodel.

Silver Bunionectomy

In those patients who have either lost too much bone mass or have a high intermetatarsal angle with rigidity of the 1st ray, I will simply remove the prominent eminence. Surgically, I resect bone from medial eminence until the medial aspect of the metatarsal head is flush with the base of the proximal phalanx. In other words, I utilize the medial aspect of the phalangeal base to guide my exostectomy. In most cases the head is "staked."

Keller Bunionectomy

The Kelller procedure is typically used in cases of painful joint degeneration, in the apropulsive patient. It is also useful in cases of high intermetatarsal angle bunions, which exhibit flexibility in the transverse plane, with no sub 2nd lesion or lesser metatarsalgia. Removing the base of the proximal phalanx, reduces the retrograde pressure on the 1st metatarsal, allowing for reduction in the intermetatarsal angle. It also reduces the proximal retrograde forces resulting in met primus elevatus and loss of propulsion from the hallux. I do not use hemi-implants to fill the defect because I do not want any retrograde pressure on the metatarsal. For the same reason I do not make any attempt to re-attach the short flexors. The only soft tissue manipulation, which is imperative to perform, is eliminating the pull of the long extensor, which will certainly deform the digit. Additionally, I have not found pinning the joint or capsular interposition makes any difference in outcomes.

First Metatarsophalangeal Joint Arthrodesis

High intermetatarsal angle bunions that display transverse flexibility of the first metatarsal and have lesser metatarsalgia or plantar calluses will do best with an arthrodesis. These patient's are typically propulsive and the arthrodesis will maintain this as well as stabilizing the ray and increasing its weight bearing potential. This procedure can be performed in patients with varying degrees of osteoporosis. I will allow patients to ambulate immediately post-operative in either a CAM walker or surgical shoe. I look at this as a Lapidus for the elderly.

I am cautious of using this procedure with rigid high intermetatarsal angles. The toe can be fused in a rectus

position, clinically eliminating the bunion, but the distance between the 1st and 2nd metatarsal heads will not have diminished. The hallux will appear parallel to the 2nd toe but there will be a large space in between the digits.

The choice of procedures is essentially determined by the degree of the intermetatarsal angle and its amount of flexibility in patients with mild to moderate osteoporosis (Table 1). With severe osteoporosis the only options are either Silver and or Keller.

Table 1

INTERMETATARSAL ANGLE REDUCTION

*Low intermetatarsal angle (<12—14°) flexible or rigid	Austin bunionectomy
*high intermetatarsal angle flexible no sub 2nd lesion or metatarsalgia	Keller bunionectomy
flexible sub 2nd lesion or metatarsalgia	1st MtPJ arthrodesis
rigid with or without plantar lesion	Silver bunionectomy